Remarks

Claims 1-26 are currently pending in this application. By this response, claims 1-26 have been canceled and claims 27-88 have been added. Thus, claims 27-88 are presented to the Examiner for consideration.

The specification has been amended in numerous places to correct typographical errors and to add omitted references numbers. Further, the specification has been amended to remove reference to a valve being included in the actuation mechanisms of the subject invention. Actuation mechanisms of gas springs include a valve. Valves however are not required in the actuation mechanisms of all telescoping springs. The actuation mechanisms of the subject invention are applicable to all telescoping spring mechanisms thus reference to a valve has been removed from the specification.

Claims 1, 12, 14 and 26 have been rejected under 35 U.S.C. §112, second paragraph. Recitation of a valve actuation "lever" in these claims should have read valve actuation "button." The subject claims have been canceled. Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112 is therefore respectfully requested.

Claims 1, 4-9, 11 and 14-15, 18-23 and 25 have been rejected under 35 U.S.C. § 102(e) over Stumpf. Applicant notes the subject claims have been canceled. Stumpf describes a height adjustment mechanism for a chair. The mechanism can be retrofitted to a traditional height adjustable chair and offers a user a more convenient means for raising and lowering the chair in the form of a user actuator which can be placed at any location on the chair. Stumpf describes a traditional height adjustable chair whose height is adjusted by a gas spring. The chair includes a two piece bracket, one piece of which is connected to the seat of the chair and the other piece of which is supported on the end of the gas spring. A rod passes through the bracket above the actuation button of the gas spring. As noted by Stumpf, in both his design, and the design of a traditional height adjustable chair, the opening in the bracket receiving the rod on one side of the bracket is sized to accommodate the rod with fairly close tolerance. The opening on the other side of the bracket is an elongated slot. To actuate the gas spring, the rod is pushed downward in the slot. The

rod turns about the single fulcrum defined by the close fitting opening and tilts to depress the valve actuation button.

The height adjustment mechanism of the subject invention differs from traditional height adjustment mechanisms, as well as the mechanism described by Stumpf, in that the openings receiving the rod are both enlarged openings. The rod moves within these enlarged openings allowing the user to utilize more than one fulcrum surface in actuating the spring. For example, in the embodiment shown in Figure 1, when an end of the rod is pulled upward, the rod turns about a fulcrum surface defined by the top of the opening closest to that end of the rod. The rod tilts above the actuation button and the button is depressed. When an end of the rod is pushed downward, the rod turns about a fulcrum bearing surface defined by the top of the enlarged opening furthest from that end of the rod. The rod tilts above the actuation button and the button is depressed. Thus, the actuation mechanism of the subject invention can utilize more than one fulcrum allowing a chair or table to be raised or lowered by either pulling an end of the rod or lever up or pushing it down. Both openings through which the actuation lever or rod extends must be enlarged to allow movement away from the multiple fulcrum surfaces. As shown in Figures 2 and 3, these fulcrum surfaces can be contacted by the lever with retaining collars placed on the actuation lever. Additionally, as shown in Figure 7, a simple end cap of the support structure can provide suitable fulcrum surfaces.

The height adjustable support of the subject invention also includes an actuation lever on which a cam lobe is eccentrically disposed. When the lever is disposed above the actuation button and rotated, the cam lobe engages either the actuation button of the spring or a bearing surface opposing the actuation button and the support can be raised or lowered. The lever having the cam lobe can also be received by enlarged openings allowing the lever to actuate the telescoping spring by being pulled up or pushed down.

The claims clearly recite that the actuation mechanisms of the height adjustable support of the subject invention possess multiple fulcrums. Applicant submits Stumpf does not suggest or describe a height adjustment mechanism which enables utilization of more than one fulcrum. Further, Stumpf does not describe a rotating cam actuator. In view of the forgoing, applicant therefore respectfully requests reconsideration and withdrawal of the rejection.

Claims 1-26 have been rejected under 35 U.S.C. § 103(a) over Wirges *et al.* in view of Stumpf. Applicant notes the subject claims have been cancelled. Wirges *et al.* describes a height adjustable column having an inner cylindrical member partially disposed in an outer member which has a polygonal bore. Guide elements provide one method of minimizing the binding moments of angular displacement of the telescoping members during longitudinal telescopic movement. Wirges *et al.* does not show an actuation mechanism using a rod or lever disposed above the actuation button to depress that button and actuate a spring. The Office Action states that it would have been obvious, in view of Stumpf, to modify the column of Wirges *et al.* to achieve the height adjustable support of the subject invention. Further the Office Action states that it would have been obvious to provide a second lever with enlarged openings as merely a multiplicity of parts. Stumpf does not suggest or describe the multiple fulcrum actuation mechanism of the subject invention. As noted previously, Stumpf describes an actuation mechanism providing means to utilize a single fulcrum. The actuation mechanism of the subject invention provides means to utilize multiple fulcrums. Further, Stumpf does not describe the cam actuation system of the subject invention. Applicant submits Stumpf alone or in combination with Wirges *et al.* does not suggest or describe the height adjustable supports of the subject invention. Reconsideration and withdrawal of the rejection is therefore respectfully requested.

Claims 12-13 and 26 have been rejected under 35 U.S.C. § 103(a) over Stumpf. Claims 12-13 and 26 explain that the height adjustable support can include a second actuation lever moving in opposing directions. Stumpf shows a single lever where the lever end moves in one direction. Stumpf does not suggest placing more than one lever in a height adjustment mechanism. Applicant submits that the use of an additional second lever of the actuation mechanism of the subject invention is not an obvious multiplicity of parts. Applicant therefore respectfully request reconsideration and withdrawal of the rejection.

In view of the foregoing remarks the applicant believes that the claims are now in condition for allowance and such action is respectfully requested.

Applicant invites the Examiner to call the under signed if clarification is needed on any of this response, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

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Marked-up Specification

Paragraph on page 1 beginning at line 1:

The present application is a continuation-in-part of co-pending U.S. Patent Application serial number 09/173,236 filed 10/15/98 entitled "Height Adjustable Pedestal for Chairs and Tables" by the same inventor as the present application. That application is incorporated herein by this reference. The present application also claims the benefit under 35 U.S.C. 119E of U.S. Provisional Patent Applications serial number 60/091,800 filed 07/06/98 entitled "Height Adjustable Tables", and serial number 60/092,699 filed 07/14/98 entitled "Tube Release Mechanism for Gas or Hydrometallic Springs" by the same inventor as the present application.

Paragraph on page 2 beginning on line 18:

Height adjustment is increasingly seen as a desirable feature of tables as well. Height adjustable pedestals using a single telescoping gas spring mechanism have been used in height adjustable tables that are typically of a type having a small circular table top. These height adjustable tables are designed as small meeting tables and are of limited use in the modern workplace. Specifically these height adjustable tables do not address the needs of computer users ~~which~~ who desire a work desk which is at the proper height. These tables are not able to ~~support the weight of computer equipment~~ operate well with off-center loading, nor are these tables designed to be used as a desk. The available height adjustable tables which use a single gas spring also do not address the needs of disabled workers.

Paragraph on page 3 beginning at line 5:

Electric motor use in height adjustable tables, although resulting in heavy and expensive tables, does provide the benefit of allowing the manufacturer to place the switching mechanism at any location on the table. This feature ensures that however the table is used that the switching mechanism for activating the electric motor is properly ~~position~~ positioned for ease of use.

Paragraph on page 7 beginning at line 7:

FIG. 9B shows a second side view of a version of a height adjustable ~~table~~ column of the present invention.

Paragraph on page 7 beginning at line 15:

FIG. 12A ~~show~~ shows a ~~side~~ top view of a height adjustable table.

Paragraph on page 8 beginning at line 24:

To actuate, or unlock, the telescoping spring mechanism either the actuation lever first or third sections can be pivoted upward or downward. If the first lever section 102 is pivoted upward, the top surface 28 of the ~~elongated~~ enlarged opening 24 acts as a fulcrum. As the lever first section distal end 104 is moved upward, the actuation lever on the opposite side of the fulcrum 28 ~~angles~~ moves downward. This downward movement of the actuation lever second and third sections results in the middle section 114 of the lever second section depressing the actuation button ~~112~~ 12 and unlocking the spring mechanism.

Paragraph on page 9 beginning at line 12:

FIG. 2 shows how two retaining collars can be disposed on the actuation lever. The retaining collars are one of many ways that the lever can be retained within the height adjustable column. As would be apparent to one skilled in the art, these collars provide bearing surfaces, cam lobes or otherwise, to contact fulcrum bearing surfaces disposed above the actuation lever upon which the actuation lever can pivot.

Paragraph on page 10 beginning on line 1:

FIG. 3 also shows a ring connector which connects the distal ends of the first and second actuation levers. The ring connector allows a user to actuate, or unlock, the telescoping spring mechanism by pivoting the ring upward or downward at any location on the ring. Regardless of the location on the ring which is moved upward or downward, the movement of the ring will result in the depressing of the actuation button. FIG. 3 also shows retaining collars positioned outside the first and second substantially upright walls. It would be apparent to one skilled in the art that these retaining collars can provide bearing surfaces or act as cam lobes to contact the fulcrum bearing surfaces in the actuation mechanisms of the subject invention.

Paragraph on page 11 beginning at line 7:

Although the connecting members are beneficial in transferring the downward or upward lever movements, it is understood that the connecting elements could be removed which would require the user to actuate each locking telescoping spring mechanism independently. This is the version of the invention shown in FIG. 4C. Accordingly, the user would actuate the locking telescoping spring mechanisms by either pivoting the first or third lever section of each actuation lever upward or downward. It is also understood that an actuation mechanism such as was shown in FIG. 3 could be used with each leg or stanchion. Use of this double lever and ring actuation mechanism within a table having two legs would be similar to the description provided ~~for~~ in FIG. 3 with the exception that both actuation mechanisms would need to be actuated to adjust the table top height. It is also possible to use the version of the invention shown in FIG. 4A in a table supporting structure having four independent legs, with each leg comprising a height adjustable column. An example of this would be to attach two additional levers to the connecting member 456 with the two additional levers extending in the opposite direction ~~at~~ of the levers 420 and 450. These two additional levers would actuate two additional locking telescoping spring mechanisms. Of two additional legs which support the table. In a four legged table of this type the base sections could be removed, if desired. This is just one example of using the invention with more than two legs.

Paragraph on page 12 beginning at line 8:

FIG. 4C shows how individually actuated locking telescoping spring ~~mechanism~~ mechanisms can be used in height adjustable columns used to support a table top. Each of the levers 420C and 450C would be accessed through the access holes. Both levers would have to both be pivoted to actuate the spring mechanisms, as no connecting member is ~~provide~~ provided to transfer the movement from one lever to the other as was the case in FIGS. 4A and 4B. A double lever or double lever and ring actuation mechanism could also have been used as has been describe earlier.

Paragraph on page 12 beginning at line 18:

FIG. 5 shows another version of the invention. In this version, the double lever and ring ~~actuation~~ actuator are supported on the top tube of a height adjustable column. FIG. 5 is a side view of a height adjustable stool which includes a height adjustable column of the present invention. The version of the height adjustable column shown in FIG. 5 is different from that of the previous versions shown in FIGS. 1 thought 4 in that top and bottom telescoping tubes are used within the height adjustable column. As will be seen, the use of telescoping tubes within the height adjustable column allows for a variety of actuation lever placement locations. The telescoping tubes also provide a higher degree of strength to the column.

Paragraph on page 13, beginning at line 6:

The spring actuation button 512 extends within the interior of the top tube to a position above the support surface 516. The actuation mechanism is shown immediately above the actuation button.. Part of the actuation mechanism is broken away to aid in viewing the interaction ~~of the actuation mechanism~~ of the actuation mechanism with the top tube and the actuation button. The actuation mechanism is similar to the mechanism which was previously shown and described in FIG. 3. The actuation mechanism includes a first lever that includes a first section 530, a second section 532, and a third section 534. A second lever which is orthogonally disposed relative to the first lever has been removed due to the cross sectioning of the invention within this drawing. A ring 536 is partially shown which connects the distal ends of the two orthogonally disposed levers.

Paragraph on page 14 beginning at line 4:

A seat support plate 518 is supported by the top tube 514. A seat cushion 520 is similarly supported by the seat support plate 518. It is understood that many different types of seat support mechanism, such as those incorporating tilt mechanisms, back rest mechanisms, etc., would be usable with a stool. It is also understood that the seat cushion could be replaced with a table top.

Paragraph on page 18 beginning at line 1:

The ~~bottom~~ first lever 1204 as is shown in FIG. 11A includes a center portion ~~1245~~ 1205 from which a portion of the outside diameter of the lever has been removed. Adjacent to the center portion ~~1245~~ 1205 are cam lobes 1207 and 1209 which are of a larger diameter, and will depress the actuation button 1212 if the first lever is rotated clockwise or counter clock wise.

Paragraph on page 18 beginning at line 5:

The ~~bottom~~ first lever also includes a reduced diameter section on the top of the center portion 1211 for interaction with the ~~top~~ second lever 1244.

Paragraph on page 18 beginning at line 7:

As shown in FIG. 11B, the ~~top~~ second lever 1244 also includes a center portion 1245 of reduced diameter which rests in the recess 1211 of the first lever 1204. Upon rotation of the second lever 1244, one of the two cam lobes 1247 and 1249, which are adjacent to the center portion, will press downward on the first lever 1204 and cause the first lever to depress the actuation button 1212.

Paragraph on page 25 beginning on line 1:

A height adjustable supporting structure for furniture components comprises at least one height adjustable leg. Each leg includes a height adjustable column that includes a locking telescoping spring mechanism. The locking telescoping spring mechanism includes ~~a~~ an ~~valve~~ actuation button that extends outwardly from the mechanism. The height adjustable column further includes at least first and second substantially upright opposing surfaces disposed at substantially the vertical position of the ~~valve~~ actuation button on the telescoping spring mechanism. The first and second upright surfaces each including an enlarged opening. An actuation lever is disposed on the height adjustable column and includes a first handle section disposed outside the first substantially upright surface, and a second section disposed between the first and second upright surfaces and extending from the opening of the first substantially upright surface to the opening within the second substantially upright surface. The enlarged openings of the first and second substantially vertical surfaces each include a fulcrum bearing surface on which ~~the second section of~~ the lever may pivot. The second section of the actuation lever is disposed adjacent to the ~~valve~~ actuation ~~lever~~ button. Pivoting of the lever on the fulcrum bearing surface of the first or second substantially upright surfaces will result in the second section of the actuation lever ~~engaging and~~ depressing the valve actuation ~~lever~~ button.